



Massachusetts Department of Transportation Office of Transportation Planning

Request for Proposal Number GL2017

Green Line Corridor Study Scope of Work

PURPOSE OF THE PROCUREMENT

The MBTA rapid transit system is constrained today and is only anticipated to become worse as the Region continues to grow and traffic continues to worsen. While work is underway to address most of the issues on the Red and Orange Lines, the Green Line requires attention.

On the Green Line, there are significant physical limitations to expanding capacity by upgrading cars or adding cars to trainsets. A separate Green Line Capacity Analysis study is conducting a technical analysis of a variety of capital investments to overcome these limitations and increase capacity. This procurement is intended to build off of that technical work. While that study will conduct a thorough technical analysis, this study will:

- Develop a nuanced understanding of existing and long-term potential demand for the Green Line network based on projected population and employment growth.
- Identify big and/or out of the box ideas to alleviate Green Line congestion, primarily through mechanisms outside of Green Line infrastructure
- Foster relationships between the MBTA, MassDOT and partner organizations along the Green Line corridor to develop and advance policies, mechanisms, and strategies to make the Green Line more attractive to travelers and improve east-west connectivity

MassDOT and the MBTA are doing extensive work to understand short and long-term needs around the system. This effort will build upon the work of Focus40 that identified anticipated

capacity constraints in 2040, but will do a more fine grained analysis to improve the projections for the Green Line corridor and take a more focused look at the best type of improvements that would complement planned investment in core Green Line assets.

With the completion of this study and the Green Line Capacity Analysis, the MBTA will be well-positioned to implement a strategic improvement plan that will satisfy existing and future demand for transit along the Green Line corridor.

SCOPE OF WORK TASKS/DELIVERABLES

The following is the scope of work, consisting of five tasks, to be undertaken by the consultant in order to complete the Green Line Corridor Study. The consultant will be responsible for all tasks, subtasks and products, unless otherwise specifically indicated. Prospective consultants are encouraged to include in their response to RFR innovative approaches to the tasks that enable improved results, faster completion of tasks, and/or more economical performance of tasks. Prospective consultants are expected to prepare a detailed schedule that lays out tasks, key milestones, and assumptions about baseline data and other supporting information in a manner that is responsive to the overall project schedule.

Task I. Background and Understanding

1.1 The consultant will familiarize themselves with all of the ongoing and recent planning studies and initiatives that have an impact on this work and Green Line operations and demand. This task will include both document review and interviews. Relevant efforts include, but are not limited to:

- 2017 Service Delivery Policy
- AFC 2.0
- Capital Investment Program
- Fleet and Facilities Plan
- Focus40
- GoBoston 2030
- Green Line Capacity Analysis
- Green Line Extension
- Green Line Positive Train Control
- Green Line Traffic and Safety Analysis
- Imagine Boston
- MBTA Bus Network Redesign
- MBTA Rider census
- MBTA Service Plans
- MBTA Strategic Plan

- MetroFuture and other existing regional land use forecasts
- MIT Green Line Tablet Study
- Newton in Motion
- Other institutional planning processes in the area
- Other relevant FMCB presentations
- Plan for Accessible Transit Infrastructure
- State of the Line Reports
- Transit Signal Priority efforts

1.2 The consultant will develop a brief literature review that highlights what factors may influence demand for transit and land use value. This literature review should include:

- How improvements in transit quality (reliability, comfort, speed) impact demand
- Relationship between improved transit service and locational decisions (housing and office)
- State of the practice on understanding how various trends may impact propensity to use different types of transit over the next few decades.

1.3 The Consultant will develop and disseminate a survey to identify what factors influence people's travel demand within the corridor. Through the survey, or other means, the Consultant will also try to understand household locational decisions that are influenced by perceptions of the Green Line. The survey should be designed to directly inform ridership projections for this study, but should be able to assist other efforts within the MBTA, MassDOT, or CTPS that are trying to answer similar questions. The survey shall be designed to provide statistically significant results.

Deliverables:

- **A brief memo and PowerPoint presentation outlining a framework of understanding and findings from literature review.**
- **Survey approach, questions, results, and analysis**

Task 2. Partnerships and Engagement

The Consultant will assist MassDOT, as needed, to identify and connect with key institutional stakeholders who rely on the Green Line to help achieve understanding and buy-in for improvements along the Green Line corridor. Depending on initial feedback from MassDOT, the identified stakeholders, and consultant recommendations, a working group may be established with regular meetings throughout the process, or an ad hoc approach to meetings may be established. At least two meetings should be held. The Consultant will assist with engagement

efforts to ensure that stakeholders and the MBTA/MassDOT are working together to identify and address Green Line issues and potential. To that end, MassDOT/MBTA would like to provide opportunities for stakeholders to:

- Assist in providing data and on the ground insights to support the objectives of this work.
- Supplement or assist with survey work discussed in Task 1.
- Help identify realistic, potential build out scenarios
- Help identify funding sources or mechanisms to partner with the MBTA or MassDOT to achieve common goals along the Green Line corridor

Deliverables:

- **Stakeholder Engagement Plan**
- **Meeting materials**
- **Outreach log**
- **Memo summarizing outcomes of outreach efforts**

Task 3: Existing Conditions

3.1 The Consultant will use MBTA data to assess Green Line demand and capacity today. The Consultant will use ODx, AFC, and historical data, as well as any other relevant data to understand the nature of Green Line ridership today, how Green Line ridership has changed, where people are going, and at what times people are traveling the most. The Consultant will use this data along with scheduled and actual capacity during both peak and off-peak times to develop a fine grained understanding of the nature of crowding on the Green Line. This work will pay close attention the relationship between delays and crowding, as well as minutes in crowded conditions per passenger.

3.2 The Consultant will identify general travel patterns (outside of MBTA services) in and around the corridor to develop an understanding of potential or latent demand for transit.

The consultant will use existing data sources that are available, potentially including Longitudinal Employer-Household Dynamics (LODES) travel to work data, data from taxis, micro-transit services, Transportation Network Companies, University shuttles, Transportation Management Associations, Hubway data, and other sources to map out origin and destination information in and around the Green Line corridor. The Consultant will also assess on and off-street parking inventory and utilization information in the corridor to help inform an analysis of travel patterns. The consultant will assess accessibility levels along the Green Line corridor using MassDOT's Conveyal license.

Deliverable: A PowerPoint that discusses the findings and implications for the Green Line and visualizes travel patterns.

Task 4. Future Conditions

4.1 No-Build Projected Land Use – After having reviewed the assumptions in existing population and employment projections for the Region, the Consultant will develop updated forecasts based on an understanding of the trends impacting population and employment as well as the development pipeline, zoning, related planning processes, and other factors that may alter existing population and employment projections from 2012 for 2040.

At least two land use scenarios will be developed, including an optimistic vision for growth in the area and a more conservative estimate.

4.2 No-Build Demand Projections (A) - The Consultant will develop two projections for future demand (one for each land use scenario). The Consultant will focus on demand for Green Line service (ridership + latent demand), actual Green Line ridership (given Green Line capacity constraints), along with demand for other transportation options in the corridor. These projections will be based on the land use projections as well as other factors that may influence demand for transit through 2040 (changes in costs of other modes, expanded bicycle network, etc.) that may influence mode split. This future demand will be informed by the survey and the other resources used in Task 1. **These ridership estimates will assume no improvement in Green Line service.** Given the outputs, the Consultant will assess crowding on the Green Line or other transit services in the corridor.

4.3 No Build Demand Projections (B) – **These ridership estimates will assume the improvements recommended through the Green Line Capacity Analysis.** The Consultant will develop projections for future demand (one for each land use scenario). The Consultant will focus on demand for Green Line service (ridership + latent demand), actual Green Line ridership (given Green Line capacity constraints), along with demand for other transportation options in the corridor. These projections will be based on the land use projections as well as other factors that may influence demand for transit through 2040 (changes in costs of other modes, expanded bicycle network, etc.). This future demand will be informed by the survey and the other resources used in Task 1. Given the outputs, the Consultant will assess crowding on the Green Line or other transit services in the corridor.

Deliverable: Memo with land use assumptions and model outputs and analysis

Task 5: Alternatives

The Consultant will develop “out of the box” concepts for alternative improvements to address service constraints and demand on Green Line.

5.1 Identify and Evaluate Strategies - The consultant, in consultation with MassDOT and the MBTA, will identify a mix of visionary or longer term solutions as well as smaller scale and operational changes for addressing Green Line capacity constraints beyond what is being identified in the Green Line Capacity Analysis. These may include solutions along the corridor, but not on the Green Line itself.

The consultant will flesh out conceptual alternatives for improving accessibility and capacity along the corridor for at least five alternatives.

The consultant will evaluate benefits, feasibility and estimate order of magnitude costs.

5.2 Build Projections – For each of the proposed strategies and for each land use scenario, the Consultant will develop projections for future demand for Green Line service (ridership + latent demand), as well as actual ridership (given Green Line capacity constraints), along with demand for other transportation options in the corridor. The consultant will use either No Build A, No Build B, or both as a baseline, depending on the proposed strategy. Given the outputs, the Consultant will assess crowding on the Green Line or other transit services in the corridor.

5.3 Develop recommendations and establish next steps. Prioritize the alternatives based on benefits, feasibility, and costs. Flesh out prioritized alternatives and identify mechanisms for implementation in a manner that will allow for easy implementation.

Deliverable: A summary report of findings from Tasks 5 in both PowerPoint and written form.